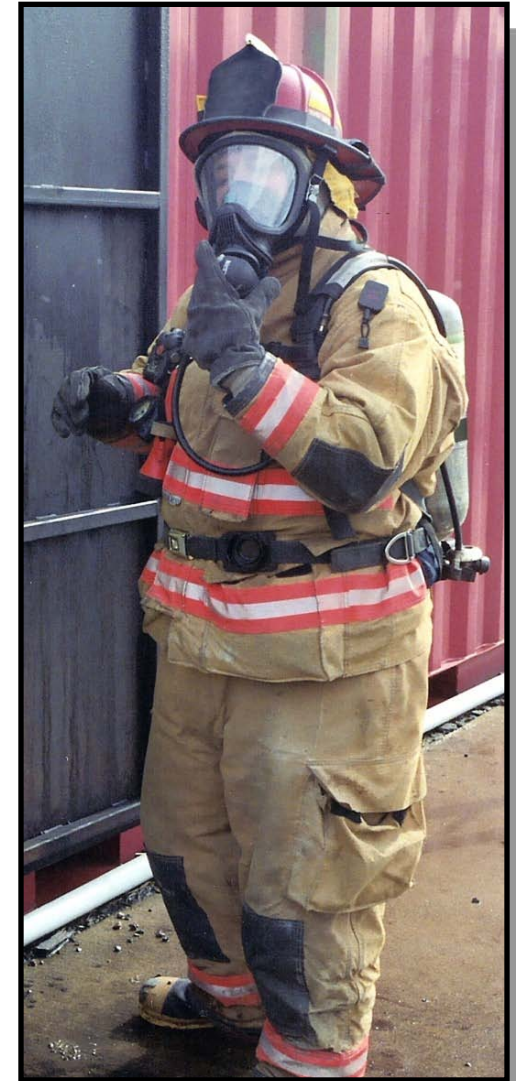


CBRN APPROVAL INTERPRETATIONS

**Personal Protective Technology Program Stakeholder Meeting
Session 4
Terrence K. Cloonan
March 3, 2010**

OVERVIEW

- **Advocacy of use**
- **Excluded workers**
- **Federal synergy**
- **Model comparison**
- **Interpretations**
- **Pathways to compliance**
- **Assistance sources**



ADVOCACY of USE

- Strong user support in private & public sector workplaces
- What is the criteria for approved or functional use of a CBRN respirator?
- Industrial respirator selection logic precedence exists
- “CBRN selection logic” standards?
- Lack of standards lead to user misinterpretations? Un-intentional nonconformance use? Intentional nonconformance adaptation?
- Can a NIOSH national respiratory protection program (RPP) training standard enhance correct NIOSH approved configuration use?



EXCLUDED WORKERS

- **Federal OSHA regulations apply to private workplaces**
- **Public workers (responders) are excluded in several states**
- **Exclusion: Result is a lack of common safety standards?**
- **Partial or no RPP policies**
- **Onus is placed on local jurisdiction to devise adequate occupational safety policies**
- **OSHA requires use of NIOSH-certified respirators**
- **NFPA 1981 requires CBRN**



FEDERAL PRECEDENCE

- OSHA 29 CFR 1910.120 - *HAZWOPER*
- OSHA 29 CFR 1910.134 - *Respiratory Protection*
- OSHA 29 CFR 1910.146 - *Confined Space*
- OSHA 29 CFR 1910.156 - *Fire Brigade*
- OSHA 29 CFR 1910.1025 - *Lead*
- EPA 40 CFR 311 - *Worker Protection*
- DOD US Army, AR 11- 34, *The Army RPP*
- DHHS PHS CDC NIOSH/MSHA 42 CFR 84 - *RPD*
- OSHA/NIOSH *CBRN PPE Selection Matrix Guidance*
- FDA, *ORA Laboratory Manual, Vol. III, Sect 1, EH&S*



FEDERAL SYNERGY DRIVES COMPLIANCY

- DHS
- OSHA
- NIST
- DOD
- EPA
- NIJ
- DOJ
- USSS
- ATF



HOW do USERS DETERMINE COMPLIANCY?

- **NOT REQUIRED:** Lowest level of trained user does not assess compliancy. It is not a requirement to perform work. Told to train, don, use, survive, and maintain.
- **REACTIVE:** Question current compliancy only after a loss time injury or LODD
- **FREE MARKET:** Rely on specifications of a competitive bid marketing process
- **GRANTS:** Compliancy is pre-determined by local jurisdiction or grant funded purchase criteria
- **RPP:** Federal/State written respiratory protection program
- **LOCAL:** Best practices, SOP, SOG, Insurance policy, etc.



COMPARISON to DETERMINE COMPLIANCY

- **Model # 1:**
NIOSH CBRN SCBA/NFPA 1981: 1997 ed.
- **Model # 2:**
NIOSH CBRN SCBA/NFPA 1981: 2002 ed.
- **Model # 3:**
NIOSH CBRN SCBA/NFPA 1981: 2002 ed.
- **Model # 4:**
NIOSH CBRN SCBA-APR-PAPR
NFPA 1981: 2007 edition



RECOGNITION and USE of CBRN SCBA

- 1) Locate the labels:** How do you know you have a federally compliant NIOSH-approved CBRN respirator?
- 2) Verify authenticity of labels:** If it is NIOSH-approved CBRN, how do you recognize CBRN protection? Can you tell the difference between NIOSH, NFPA, and manufacturer markings? Are the 1997, 2002, & 2007 NFPA 1981 labels alike? Are any of the decal labels counterfeit? Do the labels have watermarks, copyrighted logos, or other trademarks to prevent replication? Are they permanently affixed? What if there are no labels?
- 3) Know the User Instructions (UI):** Now that you know you have a NIOSH-compliant CBRN SCBA, what are its use limitations? Read and use the UI. Is the cylinder compliant to DOT requirements? What is its production date? Has the respirator been “flow tested” per approval holder/NFPA requirements? What indicates that the respirator has been flow tested? What fit test & fit factor are specified in the UI? What if there is no UI available?
- 4) Know the NIOSH limitations:** Apply the NIOSH cautions & limitation statements and manufacturer special instructions. What if there is no RPP?
- 5) Use:** IAW OSHA/NIOSH interpretations, NFPA consensus, & TBD NIJ letters

WHY NFPA 1981 EDITION is KEY

- **NFPA standard is updated every 5 years**
- **NIOSH standard published in 2001 using a three tier NIOSH-NFPA-NIOSH Special CWA-LRPL SCBA evaluation, testing, and certification process**
- **NIOSH CBRN SCBA approved model was compliant to the NFPA 1981 standard: 1997 edition, May 31, 2002**
- **Progressive NFPA 1981 editions produce progressive technical performance requirements every 5 years**
- **NIOSH CBRN protection was voluntary under NFPA 1981: editions 1997 and 2002. Required in 2007 edition**
- **In the field, NIOSH & NFPA require the use of specific manufacturer designed adhesive labels to demonstrate systems evaluation compliancy**

MODEL # 1: 1997 EDITION CBRN SCBA with INTEGRATED REMOVABLE PASS

- **2 sets of SCBA Hardware – Same make and NFPA edition**
- **One functional. One non-functional. Both non-compliant**
- **Both models are NIOSH-approved, NFPA certified, but not NFPA or DOT compliant**
- **One is missing a cylinder**
- **Other has all subcomponents but is “Out of Hydro”**
- **Functional SCBA has recognizable and valid labels**
- **Non-functional SCBA shows signs of forced label removal**
- **User must find UI for NIOSH CBRN “Q, R, T, & U” clauses**
- **Recognition in the field is “decal” label dependent**

MODEL # 2: 2002 Edition CBRN SCBA with HUD and RIT/UAC

- **Model 2 is a functional SCBA: has all subcomponents**
- **All quality assurance adhesive labels are present. One is slightly unreadable. All are gray in color**
- **CDC/NIOSH logoed “CBRN Agent Approved” label visible**
- **HHS/NIOSH logoed “13F backframe/harness” label is visible. Indicates NIOSH first tier of “industrial” approval**
- **Cylinder missing DOT requalification hydrostatic stamp**
- **User must find UI to know NIOSH CBRN “Q, R, T, & U”**
- **Multiple colors, styles, and sizes of “stickers” on different NFPA and non-NFPA models of CBRN & non-CBRN SCBA**

MODEL # 3: 2002 EDITION CBRN SCBA with AIRHATCH REGULATOR, HUD, & RIT/UAC

- **Significant amount of 2002 edition CBRN SCBA in field**
- **Common edition for applying CBRN SCBA upgrade kit**
- **Model # 3 is NIOSH-approved with CBRN Protections (OC/PD/CBRN), NFPA certified, DOT compliant, and has a NFPA annual flow-test passing grade data report**
- **Cylinder band must be removed to see “Hydro-Stamp”**
- **Numerous manufacturer unique “CBRN” markings on case, harness, and facepiece. Red color font indicators**
- **UI and “POSI-CHEK3” data present. NIOSH paper CBRN approval label insert is missing. Monthly maintenance checks are not recorded**

MODEL # 4: 2007 EDITION “MODE-of-USE” CBRN SCBA with NIOSH CBRN PAPR or APR

- **Three sets of respiratory protective device hardware. 3 UI**
- **One make of facepiece with integrated but distinct pressure-demand & negative air-pressure boundaries**
- **Carries independent NIOSH-approvals for each class of CBRN respirator technology when correctly placed into operation by a trained user. Check cylinder production date DOT hydrostatic re-qualification is not due**
- **NFPA 1981:2007 edition certified for CBRN SCBA mode-of-use configuration only. “CBRN Agent Approved” label**
- **Industrial 13F backframe label is now a 13F CBRN backframe/harness label: shows “Q, R, T, & U” statements**

MISREPRESENTATIONS OF APPROVAL

$$X + Y \neq XY, = Z$$

- **Case # 1: Southern States, 2009. Impact: Law Enforcement**
 - Field deployed non-CBRN SCBA + “CBRN Hardened” parts added = **Intentional nonconformance. No approved upgrade kit**
- **Case # 2: Midwest States, 2009. Users impacted: Fire Service**
 - Field deployed non-CBRN SCBA + NFPA 1981:2002 upgrade kit + NIOSH-approved CBRN upgrade (RETROFIT) kit without CBRN Agent Approved (Retrofit) adhesive label applied = **Conforming configuration. Nonconforming quality assurance**
- **Case # 3: North East, 2009. Impact: All trained users**
 - CBRN SCBA with 13F CBRN backframe label but without NIOSH “CBRN Agent Approved” adhesive label = Conforming configuration. Nonconforming QA. **Unintentional nonconformance/Misuse of label**

MISINTERPRETATIONS of CBRN APPROVALS

- **Case # 4: North East, 2009. Agency impacted: All users**
 - CBRN SCBA + inspection upon receipt is missing the NIOSH CBRN paper matrix label, commonly located in the UI = Nonconforming QA configuration
 - Unintentional nonconformance
- **Case # 5: North East, 2005. Agency impacted: Fire Service**
 - NIOSH-approved industrial APR + NIOSH-approved industrial canister tested to MILSPEC CWA for use in WMD response = Incorrect configuration for use in CBRN environments
 - Intentional nonconformance. Purchase was prior to 2003.

APPLYING RESEARCH TO PRACTICE

- **CBRN Respirator In-Use Life:** CBRN SCBA contaminated with liquid chemical warfare agent (CWA) + 7 hours of continuous use = Use has exceeded NIOSH limitation “U”.
U = *“The respirator should not be used beyond 6 hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.”*
- **Re-Use:** CBRN APR contaminated with liquid CWA for 2 hours are then “decontaminated” and same respirator facepiece is reused in a CBRN decontamination corridor = Re-use action violates NIOSH C&L “T” and “UU”. No more than 2 hours of continuous use. Dispose of the respirator after decontamination.

INTEROPERABILITY and FUNCTIONAL USE

- **SCBA:** Hardware “X” with cylinder “Y” = XY respirator
- **Ensembles:** CBRN respirator with NFPA C/B ensemble
- **APR:** CBRN APR facepiece “X” used with CBRN Cap 1 Canister “Y” = Voided approval for respirator system “X”. **NIOSH recognized “functional” for CBRN crisis-use of respirator “XY”**
 - Common connector. Emergency/crisis situation use only
 - Shortage of model “X” canisters but overage of “Y” canisters
 - NIOSH CBRN APR standard allows interoperability between different NIOSH CBRN facepieces and different NIOSH CBRN like canister media, provided all components are NIOSH-approved CBRN protected to the existing NIOSH standard

OBSERVATIONS of NON-EVALUATED USE

- **# 1:** NIOSH conforming facepiece + non-NIOSH (MILSPEC) SCBA respirator = stakeholder unique driven use.
Nonconforming configuration. Non-evaluated use.
- **# 2:** NIOSH-approved CBRN SCBA + only medium size facepieces in use = Reliance on OC/PD CBRN protections of SCBA. TIL testing needed to assess anthropometrics.
- **# 3:** NIOSH-approved facepiece for facial protection against paint-ball projectiles = **non-evaluated use**
- **# 4:** Military unique UI for use of NIOSH CBRN SCBA
- **# 5:** Military “*Take Three Deep Breaths - Hold Third Breath*” technique to change a NIOSH CBRN APR canister
- **# 6:** SCBA air-pressure boundary changes between modes-of-use respirator technologies in IDLH concentrations

NON-EVALUATED USE: CBRN APR & PAPR

- Canister change-out schedule development and use
- Lot number on contingency canisters is expired
- Faceblank is creased. Visor is discolored and distorted
- Training canister used in a real-time response
- PAPR air-flow meter is not used, broken, or missing
- Industrial PAPR canisters mounted on CBRN PAPR
- Incorrect battery use. Reduced PAPR power source
- Facepiece “X” is used on blower “Y” creating a non-approved configuration
- CBRN APR/PAPR used for IDLH entry



INTERPRETATION by LOCAL JURISDICTION

- **NIOSH “circa 1976” metal 13F Harness Label on SCBA**

- Used for fire fighting. Not NFPA 1981/1982 compliant

- **Non-CBRN SCBA NFPA 1981:1997 or 2002 models**

- Parts not available from manufacturer for legacy edition maintenance

- Upgrade to NFPA 1981/1982: 2007 edition standards

- Apply NIOSH-CBRN SCBA Upgrade (retrofit) Kit

- **NIOSH-approvals may be void if:**

- Introduction of non-approved part, or used beyond limitations

- Cylinder not hydrostatically re-qualified. Respirator not flow tested annually per manufacturer UI. Users are not medically evaluated or fit tested per NIOSH-recognized manufacturer UI.



PATHWAYS to COMPLIANCE

- **Precedence:** Know workplace specific standards
- **RPP:** Use OSHA 3352-02, 2009. Train and appoint a full time administrator and respirator technician
- **Approvals:** Use NIOSH CEL, FEMA RKB, & SEI
- **Postures:** Read NIOSH Publication No. 2008-132
- **Foundation:** Harmonize NFPA 472 & HAZWOPER
- **CBRN:** Evaluate/assess & define all expected uses
- **Logic:** Know OSHA/NIOSH CBRN PPE Selection Matrix
- **Training:** Apply NFPA 1404 standard: 2006 edition
- **Decon:** Adapt NIOSH/OSHA/USCG/EPA Pub No. 85-115

ASSISTANCE SOURCES

- Commonwealth or State public portals
- State Department of Labor or equivalent
- State fire or law enforcement Training Academies
- OSHA State Plan offices
- OSHA Area offices
- OSHA Consultation Project sites
- OSHA RPP inspection procedures:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=2275
- NIOSH NPPTL Pittsburgh:
<http://www.cdc.gov/niosh/npptl/default.html>
- NIOSH Respirator Trusted Source webpage:
http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/RespSource.html



DISCLAIMER: The findings and conclusions in this presentation have not been formally disseminated by the National Institute for Occupational Safety and Health (NIOSH) and should not be construed to represent any agency determination or policy. Mention of any respirator or personal protective equipment company, product, policy or the inclusion of any stakeholder reference does not constitute endorsement by NIOSH.

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PURCHASING RESPIRATORS

- **Bid Spec:** NIOSH-approved industrial • NIOSH-approved CBRN. Know the difference and ask for a recognition demonstration.
- **Purchase Standard:** When state and local employees are excluded from federal oversight, what is the “standard” fire and police department PPE purchasers rely on to specify health and safety specifications for respirators? DHS, NIJ, FEMA RKB, NFPA, others?
- **Want NIOSH CBRN SCBA for SWAT?** Resistance to heat and flame is one of the technical requirements of a CBRN SCBA approval. Require NIJ or NFPA 1981 specs be adapted for tactical use. Do not request “NIOSH CBRN Hardened” parts be added, in lieu of NFPA, to make a “NIOSH CBRN Tactical SCBA”. Relying on the integration of NIOSH-recognized CBRN individual parts could result in purchasing and using a respirator that is in a NIOSH non-approved configuration.
- **Replacement Parts:** When replacement parts are needed, contact the respirator manufacturer. Other suppliers claim to have like parts but using these parts void the NIOSH approval for the respirator in use.

SAMPLES of PUBLISHED RPP

- **Law Enforcement - State of Illinois:**
http://www.ileas.org/respirators/labor_issues/matrix.pdf
- **Fire Service – State of Michigan:**
http://www.michigan.gov/documents/cis_wsh_cet5731_90303_7.doc
- **Health Care Worker – State of Vermont:**
<http://www.healthvermont.gov/hc/ems/documents/ModelN95respprotectprogram090619.doc>
- **Private sector – Washington State (WISHA):**
<http://www.lni.wa.gov/safety/basics/Programs/Accident/Samples/RespProtectguide2.doc>
- **Insurance Fund – State of California:**
<http://www.scif.com/safety/losscontrol/Article.asp?ArticleID=541>
- **Private sector – EPA:**
<http://www.epa.gov/dfe/pubs/auto/respirator/rpp.pdf>

